

ANEXO B

**TABLAS Y FIGURAS DE CATÁLOGO MARTIN SPROCKET AND
GEAR (2004) PARA SELECCIÓN DE IMPULSORES DE CADENAS A
RODILLOS**

[ANEXO B-1]

SPROCKETS

Step I

Service Classification — Table I

Uniform Load	
Agitators, Liquid	Generators
Blowers, Centrifugal	Line Shafts, Even Load
Conveyors, Even Load	Machines, Even Load,
Elevators, Even Load	Non-reversing
Fans, Centrifugal	Pumps, Centrifugal
Moderate Shock Load	
Beaters	Laundry - Washers
Compressors,	and Tumblers
Centrifugal	Line Shafts, Uneven Load
Conveyors, Uneven	Machines, Pulsating
Load	Load, Non-reversing
Elevators, Uneven Load	Pumps, Reciprocating, Triplex
Grinders, Pulp	Screens, Rotary, Even Load
Kilns and Dryers	Woodworking Machinery
Heavy Shock Load	
Brick Machines	Mills, Hammer, Rolling
Compressors	or Drawing
Reciprocating	Presses
Crushers	Pumps, Reciprocating,
Machines, Reversing	Simplex or Duplex
or Impact Loads	

Step II

Service Factor — Table II

SERVICE CLASSIFICATION	TYPE OF INPUT POWER		
	Internal Combustion Engine with Hydraulic Drive	Electric Motor or Turbine	Internal Combustion Engine with Mechanical Drive
Uniform Load	1.0	1.0	1.2
Moderate Shock Load	1.2	1.3	1.4
Heavy Shock Load	1.4	1.5	1.7

Unfavorable Operating Conditions which may be present should be compensated for by adding .2 to the Service Factor for each unfavorable condition. Some of these conditions are listed below:

1. Multiple Shafts — add .2 for each additional shaft.
2. Excessive speed ratios — exceeding 7 to 1.
3. Heavy starting loads with frequent starts and stops.
4. Conditions of high temperatures, unusually abrasive conditions, or circumstances decreasing lubrication effectiveness or not allowing the use of recommended lubrication procedures.

Step III

Determination of Design Horsepower

Determine the design horsepower of the required drive using the following procedure.

1. Determine Service Classification — Table I. Unlisted equipment may be classified by its similarity to a listed type.
2. Using Service Classification and Frequency of Service, select the Service Factor — Table II. Increase the Service Factor by adding compensation for unfavorable operating conditions.
3. Multiply the normal operating horsepower of the drive by the Compensated Service Factor to obtain Service Horsepower.

Step IV

Drive Selection

Using Design Horsepower computed above, use Trial Selection Chart on page E184-E185, or enter tables of Horsepower Ratings shown on pages E184 thru E185. Select the smallest pitch chain which has the required horsepower rating for a pinion sprocket turning at the specified RPM. Check to be certain the selected sprocket has a listed maximum bore large enough to accommodate the specified shaft. The tables on pages E-158 thru E-159 gives maximum bores for the usual range of driving sprockets.

If the Design Horsepower at the required RPM is greater than the horsepower rating of the largest pitch chain which can operate at that speed, a multiple chain drive should be considered for the application.

Selection of drives to operate at speeds somewhat below the maximum rating will increase the life of the drive and quietness of operation.

Step V

Driving Sprocket

In selecting the driving sprocket **17 teeth are recommended as a minimum** although 15 teeth are quite often used, and as low as 7 teeth can be cut. When the maximum bore of the 17 tooth sprocket will not accommodate the driving shaft, it is necessary to go to a sprocket with a greater number of teeth. Hardened teeth are recommended for sprockets with 25 teeth or less.

[ANEXO B-2]

For Multiple Strand Ratings See Chart at Bottom

½" Pitch No. 40																	
No. of Teeth Small Sprocket	REVOLUTIONS PER MINUTE — SMALL SPROCKET																
	50	100	200	400	500	700	900	1200	1800	2400	3000	3500	4000	5000	6000	7000	8000
11	0.23	0.43	0.80	1.50	1.83	2.48	3.11	4.63	4.66	3.03	2.17	1.72	1.41	1.01	0.77	0.61	0.50
12	0.25	0.47	0.88	1.65	2.01	2.73	3.42	5.09	5.31	3.45	2.47	1.96	1.60	1.15	0.87	0.69	0.57
13	0.28	0.52	0.96	1.80	2.20	2.97	3.73	5.55	5.99	3.89	2.79	2.21	1.81	1.29	0.98	0.78	0.64
14	0.30	0.56	1.04	1.95	2.38	3.22	4.04	6.01	6.70	4.35	3.11	2.47	2.02	1.45	1.10	0.87	0.71
15	0.32	0.60	1.12	2.10	2.56	3.47	4.35	6.47	7.43	4.82	3.45	2.74	2.24	1.60	1.22	0.97	0.79
16	0.35	0.65	1.20	2.25	2.75	3.72	4.66	6.94	8.18	5.31	3.80	3.02	2.47	1.77	1.34	1.07	0.87
17	0.37	0.69	1.29	2.40	2.93	3.97	4.98	7.41	8.96	5.82	4.17	3.31	2.71	1.94	1.47	1.17	0.96
18	0.39	0.73	1.37	2.55	3.12	4.22	5.30	7.88	9.76	6.34	4.54	3.60	2.95	2.11	1.60	1.27	...
19	0.42	0.78	1.45	2.71	3.31	4.48	5.62	8.36	10.5	6.88	4.92	3.91	3.20	2.29	1.74	1.38	...
20	0.44	0.82	1.53	2.86	3.50	4.73	5.94	8.83	11.1	7.43	5.31	4.22	3.45	2.47	1.88	1.49	...
21	0.46	0.87	1.62	3.02	3.69	4.99	6.26	9.31	11.7	7.99	5.72	4.54	3.71	2.66	2.02	1.60	...
22	0.49	0.91	1.70	3.17	3.88	5.25	6.58	9.79	12.3	8.57	6.13	4.87	3.98	2.85	2.17	1.72	...
23	0.51	0.96	1.78	3.33	4.07	5.51	6.90	10.3	12.9	9.16	6.55	5.20	4.26	3.05	2.32	1.84	...
24	0.54	1.00	1.87	3.48	4.26	5.76	7.23	10.8	13.5	9.76	6.99	5.54	4.54	3.25	2.47	1.96	...
25	0.56	1.05	1.95	3.64	4.45	6.02	7.55	11.2	14.1	10.4	7.43	5.89	4.82	3.45	2.63	...	...
26	0.58	1.09	2.04	3.80	4.64	6.28	7.88	11.7	14.7	11.0	7.88	6.25	5.12	3.66	2.79	...	...
28	0.63	1.18	2.20	4.11	5.03	6.81	8.54	12.7	15.9	12.3	8.80	6.99	5.72	4.09	3.11	...	...
30	0.68	1.27	2.38	4.43	5.42	7.33	9.20	13.7	17.2	13.6	9.76	7.75	6.34	4.54	3.45	...	...
32	0.73	1.36	2.55	4.75	5.81	7.86	9.86	14.7	18.4	15.0	10.8	8.64	6.99	5.00	...	...	...
35	0.81	1.50	2.81	5.24	6.40	8.66	10.9	16.2	20.3	17.2	12.3	9.76	7.99	5.76	...	...	...
40	0.93	1.74	3.24	6.05	7.39	10.0	12.5	18.7	23.4	21.0	15.0	11.9	9.76	6.99	...	...	...
45	1.06	1.97	3.68	6.87	8.40	11.4	14.2	21.2	26.6	25.1	17.9	14.2	11.7	...	...	...	...
Lubrication	Type A				Type B				Type C								

5/8" Pitch No. 50																		
No. of Teeth Small Sprocket	REVOLUTIONS PER MINUTE — SMALL SPROCKET																	
	50	100	300	500	900	1200	1400	1800	2100	2400	2700	3000	3500	4000	4500	5000	5500	6000
11	0.45	0.84	2.25	3.57	6.06	7.85	8.13	5.58	4.42	3.62	3.04	2.59	2.06	1.68	1.41	1.20	1.04	0.92
12	0.49	0.92	2.47	3.92	6.65	8.62	9.26	6.35	5.04	4.13	3.46	2.95	2.34	1.92	1.61	1.37	1.19	1.04
13	0.54	1.00	2.70	4.27	7.25	9.40	10.4	7.16	5.69	4.65	3.90	3.33	2.64	3.16	1.81	1.55	1.34	...
14	0.58	1.09	2.92	4.63	7.86	10.2	11.7	8.01	6.35	5.20	4.36	3.72	2.95	2.42	2.03	1.73	1.50	...
15	0.73	1.17	3.15	4.99	8.47	11.0	12.6	8.88	7.05	5.77	4.83	4.13	3.27	2.68	2.25	1.92	1.66	...
16	0.67	1.26	3.38	5.35	9.08	11.8	13.5	9.78	7.76	6.35	5.32	4.55	3.61	2.95	2.47	2.11	1.83	...
17	0.72	1.34	3.61	5.71	9.69	12.6	14.4	10.7	8.50	6.96	5.83	4.98	3.95	3.23	2.71	2.31	2.01	...
18	0.76	1.43	3.83	6.07	10.3	13.4	15.3	11.7	9.26	7.58	6.35	5.42	4.30	3.52	2.95	2.52	...	...
19	0.81	1.51	4.07	6.44	10.9	14.2	16.3	12.7	10.0	8.22	6.89	5.88	4.67	3.82	3.20	2.73	...	...
20	0.86	1.60	4.30	6.80	11.5	15.0	17.2	13.7	10.8	8.88	7.44	6.35	5.04	4.13	3.46	2.95	...	...
21	0.90	1.69	4.53	7.17	12.2	15.8	18.1	14.7	11.7	9.55	8.01	6.84	5.42	4.44	3.72	3.18	...	...
22	0.95	1.77	4.76	7.54	12.8	16.6	19.1	15.8	12.5	10.2	8.59	7.39	5.82	4.76	3.99	3.41	...	...
23	1.00	1.86	5.00	7.91	13.4	17.4	20.0	16.9	13.4	11.0	9.18	7.84	6.22	5.09	4.27	...	...	...
24	1.04	1.95	5.23	8.29	14.1	18.2	20.9	18.0	14.3	11.7	9.78	8.35	6.33	5.42	4.55	...	...	...
25	1.09	2.03	5.47	8.66	14.7	19.0	21.9	19.1	15.2	12.4	10.4	8.88	7.05	5.77	4.83	...	...	...
26	1.14	2.12	5.70	9.03	15.3	19.9	22.8	20.3	16.1	13.2	11.0	9.42	7.47	6.12	5.13	...	...	...
28	1.23	2.30	6.18	9.79	16.6	21.5	24.7	22.6	18.0	14.7	12.3	10.5	8.35	6.84	5.73	...	...	...
30	1.33	2.49	6.66	10.5	17.9	23.2	26.6	25.1	19.9	16.3	13.7	11.7	9.26	7.58	...	...	...	...
32	1.42	2.66	7.14	11.3	19.2	24.9	28.6	27.7	22.0	18.0	15.1	12.9	10.2	8.35	...	...	...	...
35	1.57	2.93	7.86	12.5	21.1	27.4	31.5	31.6	25.1	20.6	17.2	14.7	11.7	9.55	...	...	...	...
40	1.81	3.38	9.08	14.4	24.4	31.6	36.3	38.7	30.7	25.1	21.0	18.0	14.3	...	...	...	...	...
45	2.06	3.84	10.3	16.3	27.7	35.9	41.3	46.1	36.6	30.0	25.1	21.4	...	...	...	...	...	...
Lubrication	Type A	Type B				Type C												

Type A Manual Lubrication
 Type B Bath or Disc Lubrication
 Type C Oil Stream Lubrication

Multiple Strand Factors

No. Strands	Strand Factor
1	1.0
2	1.9
3	2.8
4	3.7